

AMENDMENTS TO THE SPECIFICATION:

Please replace the abstract with the following amended abstract:

A tire inflation system includes an air supply source in selective fluid communication with a tire via a pneumatic conduit. ~~A method of inflating the system includes providing a tire pressure retention valve in the pneumatic conduit adjacent to the tire. An inflation pressure of the tire is determined with a step-up procedure, in which air bursts are communicated from the air supply source to a portion of the pneumatic conduit between the air supply source and the tire pressure retention valve. The volume of at least one selected communicated air burst is related to a volume of a section of the conduit. The tire is inflated with an extended pulse procedure, in which extended bursts of air are communicated from the air supply source to the tire. A shut-down sequence is performed once a predetermined target inflation pressure in the tire is reached.~~

A first valve is in fluid communication with the pneumatic conduit in between a first portion and a second portion of the conduit. A second valve that includes a vent channel is in fluid communication with the pneumatic conduit between the second portion and a third portion of the conduit. A rotary union is in fluid communication with the third portion of the conduit adjacent the tire. A first pressure indicator is in fluid communication with the first portion of the pneumatic conduit and a second pressure indicator is in fluid communication with the third portion of the pneumatic conduit. An inflation pressure of the tire is measured with a step-up procedure and the tire is inflated with an extended-pulse procedure.